# Contents

Introduction
J.L.R. Touret and A.B. Thompson ..... vii

Fluid-absent melting and the roles of fluids in the lithosphere: a slanted summary?
G. Stevens and J.D. Clemens ..... 1
Experimental strategies for the investigation of low temperature properties in granitic and pegmatitic melts
D.B. Dingwell ..... 19
The role of melt in the uplift and exhumation of orogenic belts
L.S. Hollister ..... 31
Large-scale hydration of the lithosphere above subducting slabs
S.M. Peacock ..... 49
Metasomatism during subduction: products and possible paths in the Catalina Schist, California
G.E. Bebout and M.D. Barton ..... 61
Fluid-melt–rock interaction in mafic eclogites and coesite-bearing metasediments: Constraints on volatile recycling during subduction
P. Philippot ..... 93
$N_2$ and $CO_2$ in deep crustal fluids: evidence from the Caledonides of Norway
T. Andersen, H. Austrheim, E.A.J. Burke and S. Elvevold ..... 113
Titanium substitution in biotite: an empirical model with applications to thermometry, $O_2$ and $H_2O$ barometries, and consequences for biotite stability
A.E. Patiño Douce ..... 133
Scapolite phase equilibria and carbon isotopes: constraints on the nature and distribution of $CO_2$ in the lower continental crust
D.P. Moecher ..... 163
Fluid control of charnockitization
L.L. Perchuk and T.V. Gerya ..... 175
The role of ultramafic rocks in regulating the concentrations of volatile and non-volatile components during deep crustal metamorphism
M.T. Rosing and N.M. Rose ..... 187
Paleoatmospheric consequences of $CO_2$ released during early Cenozoic regional metamorphism in the Tethyan orogen
D.M. Kerrick and K. Caldeira ..... 201